DESIGN & CONSTRUCTION GROUP
THE GOVERNOR NELSON A. ROCKEFELLER
EMPIRE STATE PLAZA
ALBANY, NY 12242

ADDENDUM NO. 1 TO PROJECT NO. 45220

CONSTRUCTION AND ELECTRICAL WORK
REPAIR PERIMETER WALL
GREAT MEADOW CORRECTIONAL FACILITY
11739 STATE ROUTE 22
COMSTOCK, NY

April 28, 2023

NOTE: This Addendum forms a part of the Contract Documents. Insert it in the Project Manual. Acknowledge receipt of this Addendum in the space provided on the Bid Form.

GENERAL REQUIREMENTS – COMMON DOCUMENT

1. SECTION 017329 REMOVALS, CUTTING, AND PATCHING: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 017329-1 thru 017329-4) noted "REVISED 4/28/2023".

CONSTRUCTION WORK SPECIFICATIONS

2. SECTION 030131 CONCRETE REHABILITATION: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 030131-1 thru 030131-7) noted "REVISED 4/28/2023".

3. SECTION 033000 CAST-IN-PLACE CONCRETE: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 033000-1 thru 033000-10) noted "REVISED 4/28/2023".

4. SECTION 071900 WATER REPELLENT COATING: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 071900-1 thru 071900-5) noted "REVISED 4/28/2023".

5. SECTION 079200 JOINT SEALERS: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 079200-1 thru 079200-5) noted "REVISED 4/28/2023".

6. SECTION 310000 EARTHWORK: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 310000-1 thru 310000-7) noted "REVISED 4/28/2023".

END OF ADDENDUM

Brady Sherlock, P.E.
Director, Division of Design
Design & Construction

SECTION 017329

REMOVALS, CUTTING, AND PATCHING

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Construction Facilities & Temporary Controls: Section 015000.

1.02 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to remain the Property of the State.

1.03 PROJECT CONDITIONS

A. Existing Conditions: Do not disturb existing structures, construction, materials or equipment unless required by the Contract.
   1. Do not cut, drill or remove structural members such as joists, beams or columns supporting construction that is to remain unless expressly required by the Contract Documents.

B. Existing Paint: A lead survey was performed on existing surfaces for the presence of lead based paints. A list of the surfaces tested and the results of the survey are in Document 003126. Take precautions as required to prevent the spread of lead containing particles and dust.
   1. Assume existing painted surfaces that have not been tested to contain lead based paint. Take precautions as required to prevent spread of lead containing particles and dust.

1.04 UNIT PRICE WORK

A. Payment for the Work listed in the Unit Price Schedule will be made at the unit price indicated multiplied by the units of completed Work.

B. The unit prices listed below shall include all Work specified in the Division 1 General Requirements Sections.

C. Unit Price Limit and Definitions for Measurement and Payment Items listed in Unit Price Schedule, CONSTRUCTION CONTRACT:
   1. Item No. 017329.01- General Concrete Crack: Payment for this Work will be made at the Contract unit price per linear foot in place. The unit price generally includes the following:
      a. Provide protection to utilities and systems within the work area.
      b. Provide temporary lighting, water, ventilation, dust containment and other temporary facilities as required to perform the work.
      c. Access to work area.
      d. Identify repair locations, mark out repairs locations and review proposed repair areas with the Director's Representative.
      e. Rout cracks a minimum of ½ inch.

f. Clean routed cracks by water and/or free air blasting.
g. Provide bond breaker, closed cell backer rod if required, and joint sealant.
h. Notify the Director's Representative for final review.
i. Clean up all debris and dispose off-site.
j. Remove all temporary work items provided under this work.

2. Item No. 017329.02- Remove and Reinstall Razor Wire: Payment for this Work will be made at the Contract unit price per linear foot in place. The unit price generally includes the following:
   a. Access to all placement locations and review with the Director's Representative.
   b. Provide protection to utilities and systems within the work area.
   c. Access to work area.
   d. Temporarily remove existing razor wire. Razor wire is to remain operable and functional during the work period. Reinstall razor wire at the end of each workday.
   e. Notify the Director's Representative for final review.
   f. Clean up all debris and dispose off-site.
   g. Remove all temporary work items provided under this work.

D. Unit Price Limit and Definitions for Measurement and Payment Items listed in Unit Price Schedule, ELECTRICAL CONTRACT:

1. Item No. 017329.01- Remove and Reattach Existing Conduit: Payment for this Work will be made at the Contract unit price per linear foot in place. The unit price generally includes the following:
   a. Identify locations where conduit interferes with concrete repairs and review with the Director's Representative.
   b. Provide means to temporary unfasten existing conduit adjacent to repair work.
   c. Provide temporary lighting if any existing wall lightning will need to be shut off. Do not disconnect any existing lighting without explicit approval from the director's representative.
   d. Provide means to support unfastened existing conduit during other wall repair work.
   e. Provide means to refasten existing conduit to wall.
   f. Notify the Director's Representative for final review.
   g. Clean up all debris and dispose off-site.
   h. Remove all temporary work items provided under this work.

2. Item No. 017329.02- Remove Existing Unused Conduit: Payment for this Work will be made at the Contract unit price per linear foot in place. The unit price generally includes the following:
   a. Identify locations of unused conduit and review with the Director's Representative.
   b. Provide temporary lighting, water, ventilation, dust containment and other temporary facilities as required to perform the work. (General access, material hoists, etc., and protection should be included in this item.)
   c. Provide means to unfasten existing unused conduit.
   d. Notify the Director's Representative for final review.
   e. Clean up all debris and dispose off-site.
   f. Remove all temporary work items provided under this work.

PART 2 PRODUCTS

2.01 MATERIALS

A. Match the appearance and performance of existing corresponding materials as closely as practicable, unless otherwise indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to cutting, drilling or removal, investigate both sides of the surface involved. Determine the exact location of structural members.

B. If unforeseen obstructions are encountered, take precautions necessary to prevent damage and obtain instructions from the Director's Representative before proceeding with the Work.

3.02 PREPARATION

A. Provide temporary shoring and other supports necessary to prevent settlement or other damage to existing construction which is to remain.

B. Prepare existing surfaces properly to receive and, where required, bond with the Work.

3.03 REMOVALS, CUTTING, AND ALTERING

A. In addition to the items indicated to be removed on the Drawings, remove existing construction superseded by the Work except items such as pipes, conduits, recessed boxes, and ducts which are built into existing construction that is to remain. Cut off and conceal such items at face of remaining construction. Provide cover plates on recessed boxes.

B. Remove and alter existing construction as required to install and connect the Work to adjacent construction in an approved manner.

C. Cut and alter existing materials as required to perform the Work. Limit cutting to the smallest amount necessary. Core drill round holes and saw cut other openings where possible.

D. Perform cutting, drilling, and removals in a manner which will prevent damage to construction which is to remain.

E. Perform removal of items to remain the property of the State with such care as necessary to prevent damage to these items.

3.04 PATCHING

A. Patch existing construction and finishes defaced, damaged, or left incomplete due to alterations and removals. Patching, except as otherwise indicated, shall be limited to the areas which have been cut or altered. Finish patched surfaces to match existing adjacent surfaces as closely as practicable.

B. Perform patching around items penetrating existing construction in a manner that will maintain the water and fire resistive capability of the existing construction.

C. Paint patched areas to match existing adjacent surfaces as closely as practicable using same type of paint. Painting, except as otherwise indicated, shall be limited to the areas which have been patched.

D. Where surfaces exposed by removals are to remain as exposed surfaces, paint such areas to match existing adjacent surfaces as closely as practicable using same type of paint.

3.05 REINSTALLATION

A. Where reinstallation of removed items is indicated, reinstall them to a condition equal to or better than their condition before removal.

END OF SECTION

SECTION 030131

CONCRETE REHABILITATION

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Water Repellent Coating: Section 071900.

B. Joint Sealers: Section 079200.

1.02 REFERENCES

A. Except as shown or specified, the Work of this Section shall conform to the requirements of International Concrete Repair Institute (ICRI), 3166 S. River Rd., Suite 132, Des Plaines, IL 60018, (847) 827-0830, www.icri.org.

1. ICRI Guideline No. 310.1R-2008 Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion (formerly Guideline No. 03730).

1.03 UNIT PRICE WORK

A. Payment for the Work listed in the Unit Price Schedule will be made at the unit price indicated multiplied by the units of completed Work.

B. The unit prices listed below shall include all Work specified in the Division 1 General Requirements Sections.

C. Unit Price Limit and Definitions for Measurement and Payment Items listed in Unit Price Schedule:

1. Item No. 030131.01- Concrete Spall No Exposed Reinforcing Bars: Payment for this Work will be made in the Contract unit price per square foot in place. The unit price generally includes the following:
    a. Access to all placement locations and review with the Director's Representative.
    b. Provide protection to utilities and systems within the work areas.
    c. Provided temporary lighting, water, ventilation, dust containment and other temporary facilities as required to perform the work.
    d. Identify repair locations by hammer soundings, mark out repairs locations and review proposed repair areas with the Director's Representative.
    e. Sawcut and remove unsound concrete by using chipping hammers to an assumed average depth of 2".
    f. Apply concrete bonding agent to roughened and cleaned concrete surface.
    g. Mix, patch, finish, and cure patching material for an assumed average depth of 2 inches.
    h. Provide cold weather procedures, hot weather procedures, curing, and waste disposal.
    i. Notify the Director's Representative for final review.

j. Clean up all waste and dispose off-site.
k. Remove all equipment, temporary facilities, and protection installed under this work item.

2. Item No. 030131.02- Concrete Spall with Exposed Reinforcing Bars: Payment for this Work will be made in the Contract unit price per square foot in place. The unit price generally includes the following:
   a. Access to all placement locations and review with the Director's Representative.
   b. Provide protection to utilities and systems within the work areas.
   c. Provided temporary lighting, water, ventilation, dust containment and other temporary facilities as required to perform the work.
   d. Identify repair locations by hammer soundings, mark out repairs locations and review proposed repair areas with the Director's Representative.
   e. Remove unsound concrete using chipping hammers to minimum ¾" behind nearest embedded reinforcing steel (assumed average depth of 4").
   f. Power tool cleaning exposed reinforcing steel.
   g. Apply concrete bonding agent to roughened and cleaned concrete surface.
   h. Install supplemental steel when existing reinforcing bars are deteriorated per the design documents.
   i. Mix, patch, finish, and cure patching material for an assumed average depth of 4 inches.
   j. Provide cold weather procedures, hot weather procedures, curing, and waste disposal.
   k. Notify the Director's Representative for final review.
   l. Clean up all waste and dispose off-site.
   m. Remove all equipment, temporary facilities, and protection installed under this work item.

3. Item No. 030131.03- Concrete Base Spall at Asphalt: Payment for this Work will be made in the Contract unit price per square foot in place. The unit price generally includes the following:
   a. Access to all placement locations and review with the Director's Representative.
   b. Provide protection to utilities and systems within the work areas.
   c. Provided temporary lighting, water, ventilation, dust containment and other temporary facilities as required to perform the work. (General access, material hoists, etc., and protection should be included in this item.)
   d. Identify repair locations by hammer soundings, mark out repairs locations and review proposed repair areas with the Director's Representative.
   e. Sawcut and partial removal of existing asphalt, base course, and subgrade to gain access to full extent of spalled concrete.
   f. Remove unsound concrete using chipping hammers to minimum ¾" behind nearest embedded reinforcing steel (assumed average depth of 4").
   g. Power tool cleaning exposed reinforcing steel.
   h. Patch spall with concrete to original surface.

i. Provide cold weather procedures, hot weather procedures, curing, and waste disposal.
j. Restore roadway to include compaction of subbase, providing sub-base course, paving fabric, binder course, tack coat, and asphalt top course.
k. Notify the director's Representative for final review.
l. Clean up all waste and dispose off-site.
m. Remove all equipment, temporary facilities, and protection installed under this work items.

4. Item No. 030131.04- Concrete Base Spall at Grass: Payment for this Work will be made in the Contract unit price per square foot in place. The unit price generally includes the following:
   a. Access to all placement locations and review with the Director's Representative.
   b. Provide protection to utilities and systems within the work areas.
   c. Provided temporary lighting, water, ventilation, dust containment and other temporary facilities as required to perform the work. (General access, material hoists, etc., and protection should be included in this item.)
   d. Identify repair locations by hammer soundings, mark out repairs locations and review proposed repair areas with the Director's Representative.
   e. Partial excavation of soil to gain access to full extent of spalled concrete.
   f. Remove unsound concrete using chipping hammers to minimum ¾" behind nearest embedded reinforcing steel (assumed average depth of 4").
   g. Power tool cleaning exposed reinforcing steel.
   h. Mix, patch, finish, and cure patching material.
   i. Provide cold weather procedures, hot weather procedures, curing, and waste disposal.
   j. Restore excavated area to original condition.
   k. Notify the Director's Representative for final review.
   l. Clean up all waste and dispose off-site.
   m. Remove all equipment, temporary facilities, and protection installed under this work items.

5. Item No. 030131.05- Concrete Spall at Top of Wall: Payment for this Work will be made in the Contract unit price per square foot in place. The unit price generally includes the following:
   a. Access to all placement locations and review with the Director's Representative.
   b. Provide protection to utilities and systems within the work areas.
   c. Provided temporary lighting, water, ventilation, dust containment and other temporary facilities as required to perform the work. (General access, material hoists, etc., and protection should be included in this item.)
   d. Identify repair locations by hammer soundings, mark out repairs locations and review proposed repair areas with the Director's Representative.

e. Remove unsound concrete using chipping hammers to minimum ¾" behind nearest embedded reinforcing steel (assumed average depth of 4").
f. Power tool cleaning exposed reinforcing steel.
g. Mix, patch, finish, and cure patching material per manufacturer's recommendations.
h. Provide cold weather procedures, hot weather procedures, curing, and waste disposal.
i. Notify the Director's Representative for final review.
j. Clean up all waste and dispose off-site.
k. Remove all equipment, temporary facilities, and protection installed under this work item.

1.04 SUBMITTALS

A. Product Data: Manufacturer's specifications and installation instructions for factory packaged products.

1.05 QUALITY ASSURANCE

A. Field Examples: Prior to performing the Work of this Section, prepare a sample panel, or a portion of existing concrete which is to be repaired, to represent each type of rehabilitation work required. Approved samples will be used as quality standards for the Work. Maintain approved samples at the site until the Work is completed.

B. Material Container Labels: Material containers shall bear the manufacturer's label indicating manufacturer's name, trade name of product, lot number, shelf life of product, and mix ratio (if applicable).

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the site in original, sealed containers. Do not deliver materials that have exceeded shelf life limitation set forth by the manufacturer.

B. Comply with manufacturer's printed instructions for storing and handling materials.

1.07 PROJECT CONDITIONS

A. Environmental Requirements: Comply with the product manufacturer's printed limitations and instructions.

PART 2 PRODUCTS

2.01 COMPANIES

A. The Euclid Chemical Company, 19218 Redwood Rd., Cleveland, OH 44110-2799, (800) 321-7628, www.euclidchemical.com.

B. Sika Corporation, 201 Polito Ave., Lyndhurst, NJ 07071, (800) 933-7452, www.sikausa.com.

C. Kaufman Products, Inc., 3811 Curtis Ave., Baltimore, MD 21226, (800) 637-6372, www.kaufmanproducts.net.

D. L&M Construction Chemicals, Inc., 14851 Calhoun Rd., Omaha, NE 68152, (800) 362-3331, www.lmcc.com.

E. Conproco Corp., 17 Production Dr., Dover, NH 03820, (800) 258-3500, www.conproco.com.

F. BASF Building Systems, 889 Valley Park Dr., Shakopee, MN 55379, (800) 433-9517, www.buildingsystems.basf.com.

2.02 MATERIALS

A. The following brand names are specified to establish product generic type and standard of quality. Other comparable products in the manufacturer's same product series may be required to closely fit the particular job conditions. Use appropriate product for depth of patch and temperature at time of application. More than one product may be required for a particular type of patching mortar. When a color choice is available, select the color to match adjoining concrete as closely as practicable. A bonding agent/primer and/or sealer shall be used as recommended by the patching mortar manufacturer.

B. Cement/Acrylic/Latex Base Patching Mortars:
   1. Type C-1 Patching Mortar: "Verticoat", by The Euclid Chemical Company; "SikaTop 122 Plus" or "SikaTop 123 Plus" by Sika Corp; "Patchwell VO" or "HiCap Plus" by Kaufman Products, Inc.
   2. Type C-3 Patching Mortar: "Patchwell VO", "HiCap", "HiCap Plus" or "DressUp" by Kaufman Products, Inc.; "SikaTop 123 Plus" or "SikaTop 144" by Sika Corp.; or "Verticoat Supreme" by The Euclid Chemical Company.

C. Rebar Coating: "SurePoxy HMEPL" or SurePoxy HM 12" by Kaufman Products, Inc.; "ECB" by Conproco Corp.; or "MasterEmaco P122" or "MasterEmaco P124" by BASF Building Systems.

D. Cleaning Agent, Bonding Agent/Primer, Sealer/Topcoat: As recommended by the patching mortar manufacturer, including primer for the reinforcing steel and primer for the concrete substrate.

E. Concrete and Bonding Agent (for concrete): Normal weight cast-in-place concrete and adhesive bonding agent as specified in Section 033000 or 033001.

PART 3 EXECUTION

3.01 PREPARATION

A. Protection: Cover or otherwise protect adjacent surfaces not being repaired.

B. Surface Preparation:
   1. Prepare surfaces to be repaired in accordance with the product manufacturer's printed instructions and as specified.
   2. Cut out and remove cracked, spalled, and disintegrated concrete. Cut back to sound concrete. Cut edges of patch perpendicular to surface of patch, unless otherwise recommended by mortar manufacturer. If steel reinforcing bars are exposed, chip concrete out from behind exposed length of bars as required for a minimum clearance around circumference of bar of 3/4 inch. In addition, cut a minimum one inch length of sound concrete away from each end of exposed length of reinforcing bars.
   3. Clean exposed steel reinforcement by oil-free abrasive blasting or high-pressure water blasting; remove bits of concrete and loose rust. If reinforcement is bowed out toward surface of the concrete, bend reinforcement back from surface.
   4. Remove paint, oils, grease, dirt, salt deposits, laitance and other contaminants from surfaces to be patched. Use cleaning agent where required.
   5. Clean areas to be patched with oil-free air or water under pressure, except as otherwise recommended by the mortar manufacturer.

3.02 COATING REBAR

A. Coat reinforcing as soon as possible after completion of surface preparation.

B. Place reinforcement coating complying with manufacturers printed instructions.

3.03 PATCHING CONCRETE

A. Patch concrete as soon as possible after completion of surface preparation.

B. Mixing Patching Mortar: Comply with mortar manufacturer's printed instructions. Proportion components and sizes of aggregate as recommended by mortar manufacturer for the particular job conditions.

C. Patch concrete in accordance with the product manufacturer's printed instructions.
   1. Coat contact surfaces of existing concrete and steel reinforcing with a bonding agent/primer as recommended in the product manufacturer's instructions.

D. Bring patches out to the original surfaces in true planes. Finish patches to match texture of adjoining concrete as close as possible.

E. Cure patches in accordance with the product manufacturer's printed instructions.

3.04 CLEANING

A. Clean up spatters and droppings.

3.05 PROTECTION

A. Protect mortar after placement in accordance with the product manufacturer's printed instructions.

END OF SECTION

SECTION 033000

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Concrete Formwork: Section 031100.

B. Steel Concrete Reinforcement: Section 032100.

1.02 REFERENCES

A. Except as shown or specified otherwise, the Work of this Section shall conform to the requirements of American Concrete Institute (ACI) and American Society for Testing and Materials (ASTM) documents.
1. ACI 301-16: Specification for Structural Concrete for Buildings.
2. ACI 304.2R-00: Placing Concrete by Pumping Methods.
3. ACI 305R-10: Guide for Hot Weather Concreting.
4. ACI 306R-10: Guide to Cold Weather Concreting.
5. ACI 308.1-11: Standard Specification for Curing Concrete.
6. ACI 318 -14 Building Code Requirements for Structural Concrete.
7. ASTM C 94/C 94M – 11b: Standard Specification for Ready- Mixed Concrete.
8. ASTM C 494/C 494M - 11: Standard Specification for Chemical Admixtures for Concrete.

1.03 DEFINITIONS

A. ACI 301, Section 1.2 - Definitions:
1. Add the following definitions:
   a. Cementitious Material: Cementitious materials include cement, ground blast furnace slag and fly ash.
   b. Corrosion Inhibitor Admixture: A liquid admixture, calcium nitrite that inhibits corrosion of concrete-embedded steel in the presence of chloride ions.
   c. Pumped Concrete: Concrete that is conveyed by pumping pressure through rigid pipe or flexible hose.
   d. Water-to-Cementitious Ratio (w/c): A ratio representing quantity in pounds of free moisture available for cement hydration divided by quantity of cementitious materials in pounds per cubic yard concrete.

1.04 SUBMITTALS

A. Submittals Package: Submit product data for design mix(es) and materials for concrete specified below at the same time as a package.

B. Product Data:

1. Mix Design: Submit proposed concrete design mix(es) together with name and location of batching plant at least 28 days prior to the start of concrete work.
   a. Include test results of proposed concrete proportions based on previous field experience or laboratory trial batches in accordance with ACI 301, Section 4.
   b. Pumped Concrete: Include test results of proposed design mix(es) tested under actual field conditions with the maximum horizontal run and vertical lift required for this project.
2. Portland Cement: Brand and manufacturer's name.
3. Fly Ash: Name and location of source, and DOT test numbers.
4. Air-entraining Admixture: Brand and manufacturer's name.
5. Water-reducing Admixture: Brand and manufacturer's name.
6. High Range Water-reducing Admixture (Superplasticizer): Brand and manufacturer's name.
7. Corrosion Inhibitor Admixture: Brand and manufacturer's name.
8. Accelerating Admixture: Brand and manufacturer's name.
9. Aggregates: Name and location of source, and DOT test numbers.
10. Bonding Agent (Adhesive): Brand and manufacturer's name, and preparation and application instructions.
11. Expansion Joint Fillers: Brand and manufacturer's name.

C. Quality Control Submittals:
   1. Batching Plant Records: At the end of each day of placing concrete, furnish the Director's Representative with a legible copy of all batch records for the concrete placed.
   2. Concrete Pumping Equipment Data: Include manufacturer's name and model of principal components, type of pump, and type and diameter of pipe/hose.

1.05 QUALITY ASSURANCE

A. Qualifications of Crew Pumping Concrete: Workers pumping concrete shall have had at least one year of experience pumping concrete.

B. Concrete batching plants shall be currently approved as concrete suppliers by the New York State Department of Transportation.

C. Truck mixers for concrete shall be currently approved by the New York State Department of Transportation.

D. Pumping equipment for pumped concrete shall be subject to the approval of the Director.

E. Fly ash supplier shall be on the New York State Department of Transportation's current "Approved List of Suppliers of Fly Ash".

F. Source Quality Control: The Director reserves the right to inspect and approve the following items, at his own discretion, either with his own forces or with a designated inspection agency:
   1. Batching and mixing facilities and equipment.

2. Sources of materials.

G. ACI 301, Section 1.4 Reference standards and cited publications:
   1. Add the following to the list of ASTM Standards:
      a. C 311-11a Standard Methods of Sampling and Testing Fly Ash or Natural Pozzolans For Use As A Mineral Admixture in Portland Cement Concrete.

H. Pre-Construction Conference: A minimum of 14 days prior to the initial submission of shop drawings, a conference will be held by the Director's Representative at the Site for the purpose of reviewing the Contract Documents, and discussing the requirements and procedures for submittals and for the Work. The conference shall be attended by the Contractor, the concrete supplier representative, and the reinforcement fabricator's project coordinator.

1.06 DELIVERY

A. ASTM C 94/C 94M, Article 14 - Batch Ticket Information: In addition to the information required by Paragraph 14.1, also include the following:
   1. Type and brand, and amount of cement.
   2. Weights of fine and coarse aggregates.
   3. Class and brand, and amount of fly ash (if any).

1.07 UNIT PRICE WORK

A. Payment for the Work listed in the Unit Price Schedule will be made at the unit price indicated multiplied by the units of completed Work.

B. The unit prices listed below shall include all work specified in the Division 1 General Requirements Sections.

C. Unit Price Limit and Definitions for Measurement and Payment Items listed in Unit Price Schedule:
   1. Item No. 033000.01- Replace Concrete Slab: Payment for this Work will be made at the Contract unit price per square foot in place. The unit price generally includes the following:
      a. Provide protection to utilities and systems within the work area.
      b. Provide temporary lighting, water, ventilation, dust containment and other temporary facilities as required to perform the work. (General access, material hoists, etc., and protection should be included in this item.)
      c. Access to work area.
      d. Provide temporary shoring as shown on plans prior to slab removal.
      e. Remove concrete slab.
      f. Lay formwork and rebar for new slab and wall. Pour new slab and wall and install manhole and cover.
      g. Notify the Director's Representative for final review.
      h. Clean up all debris and dispose off-site.
      i. Remove all temporary work items provided under this work item.

PART 2 PRODUCTS

2.01 MATERIALS

A. Cement: ASTM C 150, Type I or II Portland cement.

B. Water: Potable

C. Air-entraining Admixture: ASTM C 260, and on the New York State Department of Transportation's current "Approved List".

D. Water-reducing Admixture: ASTM C 494/C 494M, Type A, and on the New York State Department of Transportation's current "Approved List".

E. High Range Water-reducing Admixture (Superplasticizer): ASTM C 494/C 494M, Type F, and on the New York State Department of Transportation's current "Approved List".

F. Corrosion-Inhibiting Admixture: ASTM C 494/C 494M, for use in resisting corrosion of steel reinforcement.

G. Retarding Admixture: ASTM C 494, Type D, Water-reducing and retarding, for use in hot weather concreting, and on the New York State Department of Transportation's current "Approved List".

H. Accelerating Admixture: Non-corrosive admixture, containing no chloride, complying with ASTM C 494, Type C or E, and on the New York State Department of Transportation's current "Approved List".

I. Fly Ash: ASTM C 618, including Table 1 (except for footnote A), Class F except that loss on ignition shall not exceed 4.0 percent.

J. ACI 301, Section 4.2.1.2 - Aggregates:

1. Add the following paragraph:
   a. Fine aggregate for pumped concrete shall meet the requirements of ASTM C 33, except 15 to 30 percent shall pass the No. 50 sieve and 5 to 10 percent shall pass the No. 100 sieve. The fineness modulus of the fine aggregate for pumped concrete shall not vary more than 0.20 from the average value used in proportioning.

2 Add the following paragraph:
   a. Aggregates shall be taken from storage silos or other approved locations that have been tested and approved by the New York State Department of Transportation, unless otherwise approved in writing by the Director.

K. Type 1 Expansion Joint Filler: Preformed, resilient, nonextruding cork units complying with ASTM D 1752, Type II.

L. Type 2 Expansion Joint Filler: Preformed, resilient, nonextruding, self-expanding cork units complying with ASTM D 1752, Type III.

2.02 PROPORTIONING OF MIXES

A. Cast-in-place concrete shall be air-entrained normal weight concrete.
   1. Normal weight concrete, except as otherwise specified, shall have a minimum compressive strength as required by ACI 318-14 Table 19.3.2.1."Requirements for concrete by exposure class". Slump: Maximum 4 inches; minimum 2 inches before the addition of any water-reducing admixtures or high-range water-reducing admixtures (superplasticizers) at the Site.
   2. Optional Material: Fly ash may be substituted for (Portland) cement in normal weight and lightweight concrete up to a maximum of 15 percent by weight of the required minimum (Portland) cement. If fly ash is incorporated in a concrete design mix, make necessary adjustments to the design mix to compensate for the use of fly ash as a partial replacement for (Portland) cement.
      a. Adjustments shall include the required increase in air-entraining admixture to provide the specified air content.
      b. Lower early strength of the concrete shall be considered in deciding when to remove formwork.

B. Slump for Pumped Concrete: When a water-reducing admixture is not used, maximum slump shall be 4 inches. When a water-reducing admixture is used, maximum slump shall be 6 inches and when a high-range water-reducing admixture (superplasticizers) is used, maximum slump shall be 8 inches.

C. Design Air Content: Design air content for concrete shall be according to ACI 318-14 Table 19.3.2.1 "Requirements for concrete by exposure class", and ACI 318-14 Table 19.3.3.1 "Total air content for concrete exposed to cycles of freezing and thawing" with an allowable tolerance of plus or minus 1.5 percent for total air content, except as otherwise specified. Use air-entraining admixture, not air-entrained cement.

D. Water-Cement Ratio: Cast-in-place concrete shall have a maximum water-cement ratio as required by ACI 318-14 Table 19.3.2.1"Requirements for concrete by exposure class".

E. ACI 301, Section 4.2.2.3: Change article to read as follows:
   1. 4.2.2.3 - Size of Coarse Aggregates:
      a. 4.2.2.3.a Normal Weight Concrete: Coarse aggregates shall conform to graduation requirements for various sizes as tabulated in Table No. 2 of ASTM C 33. The sizes of coarse aggregates for various classes of Work shall be as follows with all percentages being determined by weight.
      b. 4.2.2.3.c For other concrete Work having a minimum cross-sectional dimension of not more than 6 inches, the coarse aggregate shall be a well graded mixture of No. 67 and No. 57, provided that not more than 50 percent nor less than 30 percent

shall be Size No. 67 and not more than 70 percent nor less than 50 percent shall be Size No. 57.

c. 4.2.2.3.d For other concrete Work having a minimum cross-sectional dimension greater than 6 inches and not more than 12 inches, the coarse aggregate shall consist of a mixture of No. 67, No. 57 and No. 467, providing that not more than 25 percent nor less than 10 percent shall be Size No. 67 and not more than 40 percent shall be Size No. 467.

d. 4.2.2.3.e For other concrete Work having a minimum cross-sectional dimension of more than 12 inches, the coarse aggregate shall consist of a mixture of No. 67, No. 57 and No. 357, providing not more than 25 percent nor less than 10 percent shall be Size No. 67 and not more than 40 percent shall be Size No. 357.

F. Admixtures: Do not use admixtures in concrete unless specified or approved in writing by the Director.

G. ACI 301, Section 4.1.2.1 - Mixture Proportions:

1. Add the following to paragraph 4.1.2.1:

a. Proposed design mix(es) for pumped concrete and the pumping equipment shall have been tested under actual field conditions with the maximum horizontal run and vertical lift required for this project.

2.03 JOINTS

A. ACI 301, Section 5.3.2.6 - Construction joints and other bonded joints:

1. Delete the following subparagraphs:

a. Use an acceptable surface retarder in accordance with manufacturer's recommendations;

b. Roughen the surface in an acceptable manner that exposes the aggregate uniformly and does not leave laitance, loosened particles of aggregate, or damaged concrete at the surface; or

2. Add the following in place of the above subparagraph:

a. The use of cement grout.

B. ACI 301, Section 10.2.5 – Isolation-joint filler materials:

1. Add the following paragraphs:

a. Except as otherwise shown on the Drawings, expansion joints shall be as follows:

b. In joints required to receive a sealant, the joint filler shall be 1/2-inch-thick and recessed as required to form a caulking slot.

c. In joints not required to receive a sealant, the joint filler shall be 1/2-inch-thick and extend through the full cross-section of the concrete.

d. Tool edges of concrete with 1/8-inch radius edging tool.

2.04 PRODUCTION OF CONCRETE

A. Provide ready-mixed concrete, either central-mixed or truck-mixed, unless otherwise approved in writing by the Director.

B. ACI 301, Section 5.3.2.1 Weather considerations
   1. Delete paragraph under 5.3.2.1.c - Hot Weather, and add the following:
      a. 5.3.2.1.c Provide adequate controls to insure that the temperature of the concrete when placed does not exceed 90 degrees F., and make every effort to place it at a lower temperature. The temperature of the concrete as placed shall not be so high as to cause difficulty from loss of slump, flash set or cold joints. Ingredients may be cooled before mixing by shading the aggregates, fog spraying the coarse aggregate, chilling the mixing water or other approved means. Mixing water may be chilled with flake ice or well-crushed ice of a size that will melt completely during mixing, providing the water equivalent of the ice is calculated into the total amount of mixing water.

C. Protect concrete from physical damage or reduced strength due to weather extremes during mixing, placement and curing.
   1. In cold weather, comply with ACI 306R.
      a. When air temperature is below 40 degrees F (4 degrees C) heat the mixing water and, if necessary, the aggregates to obtain a concrete mixture temperature of not less than 50 degrees F (10 degrees C) and not more than 80 degrees F (27 degrees C) at point of placement. If the mixing water is heated, do not exceed a temperature of 140 degrees F at the time it is added to the cement and aggregates.
   2. In hot weather, comply with ACI 305R.
      a. When air temperature is between 85 degrees F (30 degrees C) and 90 degrees F (32 degrees C), reduce mixing and delivery time from 1 1/2 hours to 75 minutes, and when air temperature is above 90 degrees F (32 degrees C), reduce mixing and delivery time to 60 minutes.

PART 3 EXECUTION

3.01 EXAMINATION AND PREPARATION

A. Do not use items of aluminum for mixing, chuting, conveying, forming or finishing concrete, except magnesium alloy tools may be used for finishing.

B. Hardened concrete, reinforcement, forms, and earth which will be in contact with fresh concrete shall be free from frost at the time of concrete placement.

C. Do not deposit concrete in water. Keep excavations free of water by pumping or by other approved methods.

D. Prior to placement of concrete, remove all hardened concrete spillage and foreign materials from the space to be occupied by the concrete.

3.02 ADMIXTURE ADDITIONS AT THE SITE

A. Site additions shall be limited to high-range water-reducers, non-chloride accelerators, and corrosion inhibitors. Comply with manufacturers' printed instructions for discharge of admixtures shall be furnished.

B. High-Range Water-Reducers:
   1. Concrete shall arrive at a slump of 2 to 4 inches (50 to 100 mm). Water additions at the Site shall be limited to comply with water-to-cementitious ratio requirements.
   2. Following addition of high-range water-reduced concrete, a minimum of 70 revolutions or 5 minutes of mixing shall be completed to assure a consistent mixture.

C. All concrete with other admixture additions shall mix a minimum of 70 revolutions or 5 minutes to assure a consistent mixture.

3.03 PLACING

A. ACI 301, Section 5.3.2.3 Conveying equipment:
   1. Add the following paragraphs:
      a. 5.3.2.3.d When pumping concrete, the lubricating mortar for the delivery line shall not be discharged into an area of concrete placement.
      b. 5.3.2.3.e The inside diameter of the delivery lines for pumped concrete shall be the greater of either a minimum of 5 inches or 3 times the maximum size of coarse aggregate.

B. ACI 301, Section 5.3.2.2 - Conveying:
   1. Add the following paragraph:
      a. Operation of truck mixers and agitators and discharge limitations shall conform to the requirements of ASTM C 94.

C. ACI 301, Section 5.3.2.4 - Depositing:
   1. Add the following paragraph:
      a. Do not allow concrete to free fall more than 4 feet.

3.04 REPAIRING SURFACE DEFECTS

A. ACI 301, Section 5.3.7 – Repair of surface defects:
   1. Add the following paragraph:
      a. 5.3.7.1.a Finish patched areas to match the texture of the surrounding surface.

B. ACI 301, Section 5.3.7.2 - Repair of tie holes:
   1. Delete last sentence in 5.3.7.2 and replace with the following:
      a. The patch mixture shall consist of a mixture of dry-pack mortar, consisting of one-part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for placing and handling. For surfaces exposed to view, blend white Portland cement and standard Portland cement

so that, when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

3.05 FINISHING FORMED SURFACES

A. Finish Schedule: Except where indicated otherwise on the Drawings, provide the finishes below:
   1. Rough Form Finish for concrete surfaces not exposed to view.
   2. Smooth Form Finish for concrete surfaces exposed to view.

B. ACI 301, Section 5.3.3.3 - As-cast Finishes:
   1. Add the following to paragraph 5.3.3.3:
      a. Fins shall be completely removed on surfaces to receive waterproofing.

3.06 CURING AND PROTECTION

A. Hot Weather Concreting: Comply with ACI 305R whenever the atmospheric temperature or the form surface temperature is at or above 90 degrees F., or climatic conditions of wind and/or low humidity will cause premature drying of the concrete.

B. Curing Temperature: Maintain the temperature of the concrete at 50 degrees F. or above during the curing period. Keep the concrete temperature as uniform as possible and protect from rapid atmospheric temperature changes. Avoid temperature changes in concrete which exceeds 5 degrees F. in any one hour and 50 degrees F. in any 24-hour period.

3.07 FIELD QUALITY CONTROL

A. ACI 301, Section 1.6.3.2 - Testing Services:
   1. Add the following paragraph:
      a. Strength Tests for Pumped Concrete: Prepare strength test specimens and make strength tests from concrete samples obtained at the truck discharge chute and at the end of the pump delivery line.

B. ACI 301, Section 1.6.2.3 – Tests required of Contractor's testing agency:
   1. Add the following paragraph:
      a. Make available to the Director's Representatives whatever test samples are required to make tests. Furnish shipping boxes for compression test cylinders.

C. Adjustment to Concrete Mixes: Mix design adjustments may be requested by the Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, at no additional cost to the State and as accepted by the Director. Laboratory test data for revised mix design and strength results

must be submitted to and accepted by the Director's Representative before using in the work.

D. Test results will be reported in writing to the Director's Representative, Ready-Mix Producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.

E. Nondestructive Testing: Impact hammer, Windsor probe, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.

F. Additional Tests: The State shall make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by the Director's Representative. The testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Pay for such tests when unacceptable concrete is verified, including all inspection and Engineering fees when non-conforming work is verified.

END OF SECTION

SECTION 079200

JOINT SEALERS

PART 1 GENERAL

1.01 UNIT PRICE WORK

A. Payment for the Work listed in the Unit Price Schedule will be made at the unit price indicated multiplied by the units of completed Work.

B. The unit prices listed below shall include all Work specified in the Division 1 General Requirements Sections.

C. Unit Price Limit and Definitions for Measurement and Payment Items listed in Unit Price Schedule:

1. Item No. 079200.01- Existing Expansion Joint: Payment for this Work will be made in the Contract unit price per linear foot in place. The unit price generally includes the following:
   a. Access to all placement locations and review with the Director's Representative.
   b. Provide protection to utilities and systems within the work areas.
   c. Provided temporary lighting, water, ventilation, dust containment and other temporary facilities as required to perform the work. (General access, material hoists, etc., and protection should be included in this item.)
   d. Clear joint of all existing materials.
   e. Install closed cell backing rod with backer seal secondary seal and joint sealant per project specifications, design documents, and manufacturer's recommendation.
   f. Notify the Director's Representative for final review.
   g. Clean up all waste and dispose off-site.
   h. Remove all equipment, temporary facilities, and protection installed under this work items.
2. Item No. 079200.02- Expansion Joint: Payment for this Work will be made in the Contract unit price per linear foot in place. The unit price generally includes the following:
   a. Access to all placement locations and review with the Director's Representative.
   b. Provide protection to utilities and systems within the work areas.
   c. Provided temporary lighting, water, ventilation, dust containment and other temporary facilities as required to perform the work. (General access, material hoists, etc., and protection should be included in this item.)
   d. Rout joint into existing concrete to an average depth of 1.5"
   e. Clean routed cracks by water and/or free air blasting.
   f. Install bond breaker, closed cell backing rod with backer seal, secondary seal, and joint sealant per project specifications, design documents, and manufacturer's recommendation.
   g. Notify the Director's Representative for final review.

h. Clean up all waste and dispose off-site.
i. Remove all equipment, temporary facilities, and protection installed under this work items.

1.02 SUBMITTALS

A. Product Data: Catalog sheets, specifications, and installation instructions for each product specified except miscellaneous materials.

B. Samples:
1. Sealants: One pint or standard tube.
2. Joint Fillers: 24 inch long full section.
3. Joint Primer/Sealer/Conditioners: One pint.
4. Backer Rods: 24 inch long full section.
5. Bond Breaker Tape: 24 inch long full section.

C. Quality Control Submittals:
1. Installer's Qualifications Data: Affidavit required under Quality Assurance Article.
2. Company Field Advisor Data: Name, business address, and telephone number of Company Field Advisor.

1.03 QUALITY ASSURANCE

A. Installer's Qualifications: The persons installing the sealants and their supervisor shall be personally experienced in the installation of sealants and shall have been regularly employed by a company engaged in the installation of sealants for a minimum of two years.
1. Furnish to the Director the names and addresses of five similar projects which the foregoing people have worked on during the past two years.
2. Furnish a letter from the sealant manufacturer, stating that the foregoing people are authorized to install the manufacturer's sealant materials and that the manufacturer's specifications are applicable to the requirements of this Project.

B. Container Labels: Include manufacturer's name, trade name of product, kind of material, federal specification number (if applicable), expiration date (if applicable), and packaging date or batch number.

C. Test and validate sealants used for exterior weathersealing per the Sealant Waterproofing Restoration Institute (SWRI).

D. Warranties:
1. Silicone sealants: 20 years Weatherseal Warranty.

1.04 PROJECT CONDITIONS

A. Environmental Requirements:
1. Temperature: Unless otherwise approved or recommended in writing by the sealant manufacturer, do not install sealants at temperatures below 40

degrees F or above 85 degrees F for non silicone sealants and below minus 20 degrees F or above 125 degrees F for silicone sealants.

2. Humidity and Moisture: Do not install the Work of this section under conditions that are detrimental to the application, curing, and performance of the materials.

B. Protection:
   1. Protect all surfaces adjacent to sealants with non-staining removable tape or other approved covering to prevent soiling or staining.
   2. Protect all other surfaces in the Work area with tarps, plastic sheets, or other approved coverings to prevent defacement from droppings.

PART 2 PRODUCTS

2.01 SEALANTS

A. Type 1 Sealant, any of the following generic types:
   1. One-part, low-modulus silicone sealant: Dow Corning 790, Dow Corning 791,Dow Corning 795, General Electric Silpruf, Pecora 864, Pecora 890, Pecora 890FTS.
   2. One-part, non-sag silicone sealant: Bostik Chem-Calk 900, Bostik Chem-Calk 915, Bostik Chem-Calk 916 Textured, Bostik Chem-Calk 2020, Pecora Dynatrol I, Sika Sikaflex 1a, Sonneborn Sonolastic NP I, or Tremco DyMonic (not SWRI), Dow Corning Contractors Weatherproofing Sealant (CWS), Dow Corning Concrete Sealant (CCS), Pecora 895.
   3. Two-part, non-sag silicone sealant: Bostik Chem-Calk 500 (not SRWI), Pecora Dynatrol II, Dow Corning CWS or CCS.

B. Secondary Sealant, any of the following generic types:
   1. Pre-compressed, self-expanding secondary seal: Backerseal, Willseal 150, Willseal 600s.

2.02 JOINT FILLERS

A. Closed Cell Neoprene Joint Filler: ASTM D 1056, Class SC (oil resistant and medium swell), 2 to 5 psi compression deflection.

2.03 MISCELLANEOUS MATERIALS

A. Joint Primer/Sealer/Conditioner: As recommended by the sealant manufacturer for the particular joint surface materials and conditions.

B. Backer Rod: Compressible rod stock of expanded, extruded polyethylene.

C. Bond Breaker Tape: Polyethylene or other plastic tape as recommended by the sealant manufacturer; non-bonding to sealant; self adhesive where applicable.

D. Cleaning Solvents: Oil free solvents as recommended by the sealant manufacturer. Do not use re-claimed solvents.

E. Masking Tape: Removable paper or fiber tape, self-adhesive, non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine all joint surfaces for conditions that may be detrimental to the performance of the completed Work. Do not proceed until satisfactory corrections have been made.

3.02 PREPARATION

A. Clean joint surfaces immediately before installation of sealant and other materials specified in this Section.
   1. Remove all loose materials, dirt, dust, rust, oils and other foreign matter that will impair the performance of materials installed under this Section.
   2. Remove lacquers, protective coatings and similar materials from joint faces with manufacturer's recommended solvents.
   3. Do not limit cleaning of joint surfaces to solvent wiping. Use methods such as grinding, acid etching or other approved and manufacturer's recommended means, if required, to clean the joint surfaces, assuring that the sealant materials will obtain positive and permanent adhesion.

B. Set joint fillers at proper depth and position as required for installation of bond breakers, backer rods, and sealants. Do not leave voids or gaps between the ends of joint filler units.

C. Priming Joint Surfaces:
   1. Prime joints other than those above if so recommended by the manufacturer's printed instructions.
   2. Do not allow the primer/sealer to spill or migrate onto adjoining surfaces.

3.03 JOINT BACKING INSTALLATION

A. Install bond breaker tape in relaxed condition as it comes off the roll. Do not stretch the tape. Lap individual lengths.

B. Install backer rod of sufficient size to fill the joint width at all points in a compressed state. Compress backer rod at the widest part of the joint by a minimum of 25 percent. Do not cut or puncture the surface skin of the rod.

3.04 SEALANT INSTALLATION

A. Except as shown or specified otherwise, install sealants in accordance with the manufacturer's printed instructions.

B. Install sealants with ratchet hand gun or other approved mechanical gun. Where gun application is impractical, install sealant by knife or by pouring as applicable.

C. Finishing: Tool all vertical, non-sag sealants so as to compress the sealant, eliminating all air voids and providing a neat smoothly finished joint. Provide slightly concave joint surface, unless otherwise indicated or recommended by the manufacturer.
   1. Use tool wetting agents as recommended by the sealant manufacturer.

3.05 FIELD QUALITY CONTROL

A. Test Samples:
   1. Where directed, for each 1000 linear feet of joint installed, cut out and carefully remove a 6 inch long sample of the undisturbed sealant and joint backer material from the newly installed Work. Remove the samples in the presence of the Director's Representative who will retain them for evaluating and testing.
   2. Reseal cut out areas with the same materials.

3.06 CLEANING

A. Immediately remove misapplied sealant and droppings from metal surfaces with solvents and wiping cloths. On other materials, remove misapplied sealant and droppings by methods and materials recommended in writing by the manufacturer of the sealant material.

B. After sealants are applied and before skin begins to form on sealant, remove all masking and other protection and clean up remaining defacement caused by the Work.

END OF SECTION

SECTION 310000

EARTHWORK

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Cast-In-Place Concrete: Section 033000.

B. Site Restoration: Section 310101.

1.02 DEFINITIONS

A. The following terms shall have the meanings ascribed to them in this Article, wherever they appear in this Section.
   1. Earth Excavation: The removal of all surface and subsurface material not classified as rock (as defined below).
   2. Subgrade Surface: Surface upon which subbase or topsoil is placed.
   3. Subbase: Select granular material or subbase course Type 2 which is placed immediately beneath pavement or concrete slabs.
   4. Maximum Density: The dry unit weight in pounds per cubic foot of the soil at "Optimum Moisture Content" when determined by ASTM D 698 (Standard Proctor).
   5. Landscaped Areas: Areas not covered by structures, walks, roads, paving, or parking.
   6. Unauthorized Excavation: The removal of material below required elevation indicated on the Drawings or beyond lateral dimensions indicated or specified without specific written direction by the Director's Representative.
   7. Grading Limit Line (Shown on Drawings): Limits of grading, excavations and filling required for the work of this contract. Unless specifically noted otherwise, the Grading Limit Line and Contract Limit Line shall be considered the same.

1.03 SUBMITTALS

A. Product Data:
   1. Filter Fabric: Manufacturer's catalog sheets, specifications, and installation instructions.

B. Samples: Submit samples as follows. Take the samples in the presence of the Director's Representative, and submit to the Directors Representative the laboratory test results for gradation, proctors and soundness tests, when required. These tests shall be performed in accordance with ASTM standards, shall be performed and signed by a certified soils laboratory, and shall be submitted as part of the original submittal. At a minimum the samples taken shall be of the following quantities:
   1. Subbase Course Type 2: 50 - 60 lb. (Two Samples).
   2. Selected Fill: 40 - 50 lb.

C. Quality Control Submittals:
1. Subbase Materials: Name and location of source and the DOT Source Number. If the material is not being taken from an approved DOT Source the results of the gradation and soundness tests performed by an ASTM certified soils laboratory will be required.
2. Other Aggregates: Name and location of source and soil laboratory test results.

1.04 PROJECT CONDITIONS

A. Cold Weather Requirements:
1. Excavation: When freezing temperatures are anticipated, do not excavate to final required elevations for concrete work unless concrete can be placed immediately.
2. Backfilling: If backfill is being placed during freezing temperatures the backfilling operations shall be monitored by the Director's Representative and the following procedures shall be followed:
   a. Frozen ground shall be removed in its entirety from beneath and five feet beyond the area of fill placement.
   b. The fill material placed shall consist of Selected Fill and shall be free of all frozen chunks that exceed four inches in size. The material transported to the project site shall only consist of material excavated from below the frost depth.
   c. At the end of the work day, the area of fill placement shall be covered with insulated blankets, or left unprotected. Other means of protection (hay, wood chips, etc.) may also be used for protection provided it is approved by the Director's Representative.
   d. Following work day, remove the insulated blankets and/or strip the area of all frozen material as specified previously.
   e. Upon establishing the subgrade elevations, protect the grades with insulated blankets or place additional material that will adequately insulate the exposed earth surface from frost. This additional fill or protective material shall be stripped just prior to pouring concrete.

PART 2 PRODUCTS

2.01 MATERIALS

A. Subbase Course Type 2: Stockpiled, crushed ledge rock or approved blast furnace slag. Comply with the gradation and material requirements specified below:

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
2 inch	50.8	100
1/4 inch	6.35	25-60
No. 40	0.425	5-40

Sieve		Percent Passing
Sieve Size	Size opening (mm)	
No. 200	0.075	0-10

1. Magnesium Sulfate Soundness Test: 20 percent maximum loss by weight after four test cycles.
2. Plasticity Index: The plasticity index of the material passing the No. 40 mesh sieve shall not exceed 5.0.
3. Elongated Particles: Not more than 30 percent, by weight, of the particles retained on a 1/2 inch sieve shall consist of flat or elongated particles. A flat or elongated particle is defined as one which has its greatest dimension more than three times its least dimension.

B. Suitable Material (Fill and Backfill for Landscaped Areas): Material consisting of mineral soil (inorganic), blasted or broken rock and similar materials of natural or man-made origin, including mixtures thereof. Maximum particle size shall not exceed 2/3 of the specified layer thickness prior to compaction. NOTE: Material containing cinders, industrial waste, sludge, building rubble, land fill, muck, and peat shall be considered unsuitable for fill and backfill, except topsoil and organic silt may be used as suitable material in landscaped areas provided it is placed in the top layer of the subgrade surface.

2.02 GEOTECHNICAL FABRICS

A. Filter Fabric (GeoTextile)
1. Separation/Stabilization beneath pavements: Amoco 4551, Bonded Fibers Products PN080, Maccaferri Gabions MacTex MX275 & 340, Mirafi 160N & 180N or equivalent.

PART 3 EXECUTION

3.01 CLEARING AND GRUBBING

A. Clear and grub the site within the Grading Limit Line (GLL) of trees, shrubs, brush, other prominent vegetation, debris, and obstructions except for those items indicated to remain. Completely remove stumps and roots protruding through the ground surface.

B. Fill depressions caused by the clearing and grubbing operations in accordance with the requirements for filling and backfilling, unless further excavation is indicated.

3.02 UNDERGROUND UTILITIES

A. Locate existing underground utilities prior to commencing excavation work. Determine exact utility locations by hand excavated test pits. Support and protect utilities to remain in place.

B. Do not interrupt existing utilities that are in service until temporary or new utilities are installed and operational.

3.03 EXCAVATION

A. Excavate earth as required for the Work.

B. Install and maintain all erosion and sedimentation controls during all earthwork operations as specified on the Contract Drawings or as directed by local officials. If the erosion and sedimentation controls specified by the local officials are more stringent than those specified on the Contract Drawings contact the Director's Representative.

C. Maintain sides and slopes of excavations in a safe condition until completion of backfilling. Comply with Code of Federal Regulations Title 29 - Labor, Part 1926 (OSHA).

1. Trenches: Deposit excavated material on one side of trench only. Trim banks of excavated material to prevent cave-ins and prevent material from falling or sliding into trench. Keep a clear footway between excavated material and trench edge. Maintain areas to allow free drainage of surface water.

D. Stockpile excavated materials classified as suitable material where directed, until required for fill. Place, grade, and shape stockpiles for proper drainage as approved by the Director's Representative.

E. Pavement: Excavate to subgrade surface elevation.

F. Unauthorized Excavations: Unless otherwise directed, backfill unauthorized excavation under footings, foundation bases, and retaining walls with compacted select granular material without altering the required footing elevation. Elsewhere, backfill and compact unauthorized excavation as specified for authorized excavation of the same classification, unless otherwise directed by the Director.

1. Unauthorized excavations under structural Work such as footings, foundation bases, and retaining walls shall be reported immediately to the Director before any concrete or backfilling Work commences.

G. Notify the Director's Representative upon completion of excavation operations. Do not proceed with the Work until the excavation is inspected and approved. Inspection of the excavation by the Director's Representative will be made on 3 working days notice.

3.04 DEWATERING

A. Prevent surface and subsurface water from flowing into excavations and trenches and from flooding the site and surrounding area.

B. Do not allow water to accumulate in excavations or trenches. Remove water from all excavations immediately to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to the stability of subgrades and foundations. Furnish and maintain pumps, sumps, suction and discharge

piping systems, and other system components necessary to convey the water away from the Site.

C. Convey water removed from excavations, and rain water, to collecting or run-off area. Cut and maintain temporary drainage ditches and provide other necessary diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.

D. Provide temporary controls to restrict the velocity of discharged water as necessary to prevent erosion and siltation of receiving areas.

3.05 PLACING FILTER FABRIC

A. Place and overlap filter fabric in accordance with the manufacturer's installation instructions, unless otherwise shown.

B. Cover tears and other damaged areas with additional filter fabric layer extending 3 feet beyond the damage.

C. Do not permit traffic or construction equipment directly on filter fabric.

D. Backfill over filter fabric within two weeks after placement. Backfill in accordance with the fabric manufacturer's instructions and in a manner to prevent damage to the fabric.

3.06 PLACING FILL AND BACKFILL

A. Excavations: Backfill as promptly as practicable, but only after approval by the Director's Representative. Do not backfill with excavated material unless it meets the requirements of this Section.

B. Place backfill and fill materials in layers not more than 8 inches thick in loose depth unless otherwise specified. Before compaction, moisten or aerate each layer as necessary to facilitate compaction to the required density. Do not place backfill or fill material on surfaces that are muddy, frozen, or covered with ice.
   1. Place fill and backfill against foundation walls.

C. Prevent wedging action of backfill against structures by placing backfill uniformly around structure to approximately same elevation in each layer. Place backfill against walls of structures containing basements or crawl spaces only after the first floor structural members are in place.

D. Under Pavements and Walks:
   1. Up to Subgrade Surface Elevation: Place selected fill when fill or backfill is required.
   2. Subbase Material: Place as indicated.

E. Landscaped Areas: Place suitable material when required to complete fill or backfill areas up to subgrade surface elevation. Do not use material containing rocks over four inches in diameter within the top 12 inches of suitable material.

3.07 COMPACTION

A. All materials with exception of open graded stone (No. 2 Coarse aggregate, No. 1 Coarse aggregate, Item B-12, etc.):
   1. Compact each layer of fill and backfill for the following area classifications to the percentage of maximum density specified below and at a moisture content suitable to obtain the required densities, but at not less than three percent drier or more than two percent wetter than the optimum content as determined by ASTM D 698 (Standard Proctor).
      a. Landscaped Areas: 90 percent.
      b. Pavements and Walks: 95 percent.

   2. If a compacted layer fails to meet the specified percentage of maximum density, the layer will be re-compacted and retested. If compaction cannot be achieved the material/layer will be removed and replaced. No additional material may be placed over a compacted layer until the specified density is achieved

3.08 GRADING

A. Rough Grading: Trim and grade area within the Grading Limit Line and excavations outside the limit line, required by this Contract, to a level of four inches below the finish grades indicated unless otherwise specified herein or where greater depths are indicated. Provide smooth uniform transition to adjacent areas.

B. Finish Grading: Finish surfaces free from irregular surface changes, and as follows:
   1. Grassed Areas: Finish areas to receive topsoil to within 1 inch above or below the required subgrade surface elevations.
   2. Walks and Pavements: Place and compact subbase material as specified. Shape surface of areas to required line, grade and cross section, with the finish surface not more than 1/2 inch above or below the required subbase elevation.

C. Spread approved topsoil directly upon prepared subgrade surface to a depth measuring 4 inches after natural settlement of the topsoil has occurred in areas to be seeded or to receive sod. Place to greater depth when necessary to adjust grades to required elevations.
   1. Approved existing topsoil within the Grading Limit Line may be used. Provide additional topsoil from outside sources as required.

D. Finish topsoil surface free of depressions which will trap water, free of stones over 1 inch in any dimension, and free of debris.

3.09 RESTORATION

A. Restore pavements, walks, curbs, lawns, and other exterior surfaces damaged during performance of the Work to match the appearance and performance of existing corresponding surfaces as closely as practicable.

B. Topsoil and seed or sod damaged lawn areas outside the GLL and new lawn areas inside the GLL. Water as required until physical completion of the Work.

3.10 DISPOSAL OF EXCESS AND UNSUITABLE MATERIALS

A. Remove from State property and dispose of excess and unsuitable materials, including materials resulting from clearing and grubbing and removal of existing improvements.

3.11 FIELD QUALITY CONTROL

A. Compaction Testing: Notify the Director's Representative at least 3 working days in advance of all phases of filling and backfilling operations. Compaction testing will be performed by the Director's Representative to ascertain the compacted density of the fill and backfill materials. Compaction testing will be performed on certain layers of the fill and backfill as determined by the Director's Representative. If a compacted layer fails to meet the specified percentage of maximum density, the layer shall be re-compacted and will be retested. No additional material may be placed over a compacted layer until the specified density is achieved.

3.12 PROTECTION

A. Protect graded areas from traffic and erosion, and keep them free of trash and debris.

END OF SECTION